I 1003

COVER SHEET (PAGE 1 of 2)

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Proposal Title: Pelger Mutual Water Company: Small Fish Screen Evaluation.

Applicant Name: Pelger Mutual Water Company

Mailing Address: PO BOX 1193, Woodland, CA 95776

Telephone: (530) 662-6219

Fax: (530) 662-9419

Amount of funding requested: $ 95,000 for 2 years

Indicate the Topic for which you are applying (check only one box). Note that this is an important decision: see page __ of the Proposal Solicitation Package for more information.

- ☐ Fish Passage Assessment
- ☐ Fish Passage Improvements
- ☐ Floodplain and Habitat Restoration
- ☐ Gravel Restoration
- ☐ Fish Harvest
- ☐ Species Life History Studies
- ☐ Watershed Planning/Implementation
- ☐ Education
- ☒ Fish Screen Evaluations - Alternatives and Biological Priorities

Indicate the geographic area of your proposal (check only one box):

- ☒ Sacramento River Mainstem
- ☐ Sacramento Tributary: _____
- ☐ Delta
- ☐ East Side Delta Tributary: _____
- ☐ Suisun Marsh and Bay
- ☐ San Joaquin Tributary: _____
- ☐ San Joaquin River Mainstem
- ☐ Other: _____
- ☐ Landscape (entire Bay-Delta watershed)
- ☐ North Bay: _____

Indicate the primary species which the proposal addresses (check no more than two boxes):

- ☐ San Joaquin and East-side Delta tributaries fall-run chinook salmon
- ☒ Winter-run chinook salmon
- ☐ Spring-run chinook salmon
- ☐ Late-fall run chinook salmon
- ☐ Fall-run chinook salmon
- ☐ Delta smelt
- ☐ Longfin smelt
- ☐ Splittail
- ☒ Steelhead trout
- ☐ Green sturgeon
- ☐ Striped bass
- ☐ Migratory birds

I-012862

COVER SHEET (PAGE 2 of 2)

May 1998 CALFED ECOSYSTEM RESTORATION PROPOSAL SOLICITATION

Indicate the type of applicant (check only one box):

☐	State agency	☐	Federal agency
☐	Public/Non-profit joint venture	☐	Non-profit
☐	Local government/district	☒	Private party
☐	University	☐	Other: _____

Indicate the type of project (check only one box):

☐	Planning	☐	Implementation
☒	Monitoring	☐	Education
☐	Research		

By signing below, the applicant declares the following:

(1) the truthfulness of all representations in their proposal;

(2) the individual signing the form is entitled to submit the application on behalf of the applicant (if applicant is an entity or organization); and

(3) the person submitting the application has read and understood the conflict of interest and confidentiality discussion in the PSP (Section II.K) and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent as provided in the Section.

Scott C Tucker President Pelger Mutual W.C.

(Signature of Applicant)

I-012863

EXECUTIVE SUMMARY

Pelger Mutual Water Company: Small Fish Screen Evaluation

Applicant

Pelger Mutual Water Company

Project Description & Primary Biological/Ecological Objectives:

Pelger Mutual Water Company proposes to evaluate the benefits of screening a specific type of small diversion on the Sacramento River in Sutter County by comparing entrainment at two diversions. The diversions are located adjacent to one another on an outside bend of the river, and have the same configuration, pumps, pumping capacity, intake depths, diversion volumes, and operating regimes. One of the diversions is screened (Pelger Mutual's diversion), and the other is not (Broomiside Farms diversion). Thus, these diversions provide an ideal opportunity to evaluate the benefits of screened diversions of this type, prioritize screening of diversions on the basis of fisheries benefits, and consider alternatives.

By quantitatively evaluating entrainment at small screened versus unscreened diversions, valuable information will gained regarding the cost effectiveness of small diversion screening. Subsequently, alternatives to screening can be better evaluated from a cost/benefit standpoint. Fisheries resource management of several priority fish species will benefit from this information, including the threatened Central Valley steelhead and all runs of chinook salmon.

Approach/Tasks/Schedule:

Completion of the proposed study would involve the following tasks:

Agency consultation, permitting	11/1/98 - 3/31/99
Monitoring	4/1/99 - 12/31/99
Analysis and Reporting	1/1/00 - 6/30/00

Justification:

The proposed study will benefit future fish screen planning, as it will provide a quantitative analysis and comparison of entrainment losses at "twin" diversions, one of which is unscreened. This type of side-by-side analysis of pump related entrainment losses has never been conducted in Central Valley watersheds. Data from this analysis will help answer pertinent questions about fish screening, such as 1) how effective is a small diversion screen, 2) what are the fisheries resource losses without screening, 3) what are the quantified benefits and costs of screening, 4) how can changes in diversion rates, frequency, or diel and seasonal timing affect entrainment at a small screen, and 5) how do entrainment rates vary with river conditions?

Budget Costs:

The proposed budget for the project is presented below. Pelger Mutual Water Company is proposing to absorb $5,000 in management costs as an in-kind cost share contribution, resulting in a total study price of $95,000.

Permits and Agency Consultation	--	$10,000
Monitoring	--	$50,000
Report, Analysis, Management	--	$40,000
Cost Share	--	($5,000)
Total	--	$95,000

Third Party Impacts:
There are no anticipated third party impacts associated with the project.

Applicant Qualifications:
This proposal is submitted by Murray, Burns and Kienlen, Consulting Civil Engineers of Sacramento, California, on behalf of Pelger Mutual Water Company. MBK has been retained to by Pelger Mutual for fish screen, water supply planning, flood control and water rights related services. MBK's fish screen projects include facilities associated with Deseret Farms Wilson Ranch, Maxwell Irrigation District, Lower Joice Island, Thousand Acre Ranch, Browns Valley Irrigation District, Grizzly Island and King Island.

Monitoring and Data Evaluation:
The monitoring program will be focused on evaluating comparative entrainment at each of the diversions (screened and unscreened), under a variety of hydraulic conditions and operating scenarios. Monitoring of entrainment will occur 4-6 days per week during 9 months of the diversion season. Variables to be monitored at each of the diversions include the following.

- Diversion volume, timing, duration, frequency
- River flow, temperature, turbidity, hydraulic characterization
- Entrained species, sizes, numbers, and timing

Biological sampling will utilize fyke nets and live boxes that can be attached directly to the downstream end of the diversions. The nets will be continuously operated during water diversion over 4-6 days each week. A technical report will be prepared after the irrigation season, itemizing the results of the biological monitoring. Results of statistical tests (including ANOVA) and comparative graphics will be provided.

Local Support/Coordination With Other Program/Compatibility with CALFED
The study is supported by both water diverters at the site. The applicant will coordinate information exchange with agency staff involved in various fish screening programs. The study is compatible with CALFED's mission to seek solutions to water problems in the Delta and its tributary watersheds.

Pelger Mutual Water Company: Small Fish Screen Evaluation

Topic:

Small Screen Evaluations and Alternatives

Applicant:

Pelger Mutual Water Company
c/o Scott Tucker
P.O. Box 1193
Woodland, California 95776
Telephone: (530) 662-6219 Fax: (530) 662-9419

Applicant Type: Private
Tax I.D. 94-6129013

PELGER2.WPD

I. Project Description

Project Description and Approach

Pelger Mutual Water Company proposes to evaluate, for the first time ever, the benefits of screening a specific type of small diversion on the Sacramento River in Sutter County by comparing entrainment at two diversions. The diversions are located adjacent to one another on an outside bend of the river, and have the same configuration, pumps, pumping capacity, intake depths, diversion volumes, and operating regimes. One of the diversions is screened (Pelger Mutual's diversion), and the other is not (Broomieside Farms diversion). Thus, these diversions provide an ideal opportunity to evaluate the benefits of screened diversions of this type, prioritize screening of diversions on the basis of fisheries benefits, and consider alternatives.

The two pumps are located at river mile 111.72 on the Sacramento River. They are electric turbine pumps in a slant configuration, with a capacity of 40 cfs each, but operated at 20 cfs. The intakes are located 10 feet below the surface. The diversions discharge into concrete lined canals.

The principal objective of this project is evaluate entrainment losses of chinook salmon and other priority species in the Sacramento River from diversions of this type, quantify the benefits of screening, contribute to evaluation of priorities for small diversion screening, and develop operational or other alternatives to decrease entrainment. The results of this investigation will provide valuable information regarding the benefits of small screens, possible priorities for types and locations of small diversions to be screened, and facilitate evaluation of cost-effective alternatives. To accomplish this objective, entrainment would be thoroughly monitored in side-by-side tests of the two pumps. Side-by-side tests would include variations in diversion rates, frequency, diel and seasonal timing, and river. Fish screen benefits would be quantified, and alternatives evaluated from a benefit/cost viewpoint.

Proposed Scope of Work

The proposed scope of work is as follows:

1. **Environmental Permitting and Agency Consultation** - Obtain incidental take permits, refine monitoring approach and study plan, consult with agency staff (Fish Facilities Team, CVPIA AFSP, IEP Ag Diversion Project Work Team) regarding the study plan, conduct site visits with interested agencies. No CEQA/NEPA documentation is necessary.

2. **Fisheries Monitoring and Hydraulic Analysis** - Conduct 9 months (April - December) of entrainment monitoring during the diversion season. Includes weekly entrainment monitoring of each of the diversions, evaluation of hydraulic conditions in the river in front of the intake, and documentation of pumping operations (flows, velocities, etc.).

3. **Analysis and Reporting** - Includes evaluation of the entrainment data, statistical analysis, technical reports on fisheries and hydraulic results, and evaluation of

alternatives. Also includes quarterly reports and one annual presentation.

Location and Geographic Boundaries

The project is located along the left bank of the Sacramento River near river mile 111.72 in Sutter County (Figure 1). The two pumping plant are 75 feet apart (see photos in Figure 2).

Expected Benefits

The proposed project will address one major ecosystem stressor category ("Alteration of Flows and Other Effects of Water Management") and will specifically address the stressor subcategory of entrainment. By quantitatively evaluating entrainment at small screened versus unscreened diversions, valuable information will be gained regarding the cost effectiveness of small diversion screening. Subsequently, alternatives to screening can be better evaluated from a cost/benefit standpoint. Fisheries resource management of several priority fish species will benefit from this information, including the threatened Central Valley steelhead and all runs of chinook salmon.

Background and Ecological/Biological/Technical Justification

Entrainment of fish into agricultural diversions along the mainstem of the Sacramento River is suspected of being a significant source of mortality for chinook salmon, since many of the diversions are unscreened or poorly screened. The large number of diversions represents a potential threat to steelhead and chinook salmon populations during the rearing and smolt outmigration periods, particularly since the irrigation season overlaps with periods when juvenile salmonids are liable to be present and most vulnerable to entrainment. However, fish screening is expensive, and may not be practical in situations where entrainment losses are low due to the small size or configuration of the diversion.

The proposed study will benefit future fish screen planning, as it will provide the first quantitative analysis and comparison of entrainment losses from pumping at "twin" diversions, one of which is unscreened. Data from this analysis will help answer pertinent questions about fish screening, such as 1) how effective is a small diversion screen, 2) what are the fisheries resource losses without screening, 3) what are the quantified benefits and costs of screening, 4) how can changes in diversion rates, frequency, or diel and seasonal timing affect entrainment at a small screen, and 5) how do entrainment rates vary with river conditions?

The primary benefit of the project is the reduction of direct fish mortality associated with entrainment. This project is consistent with the Ecosystem Restoration Program Plan (ERPP) objective to reduce stressors related to water diversions (Target 1 regarding entrainment, page 151). In addition, the project is consistent with section 3406(b)(21) of the CVPIA, which addresses the Anadromous Fish Screen Program.

Monitoring and Data Evaluation

The monitoring program will be focused on evaluating comparative entrainment at each of the diversions (screened and unscreened), under a variety of hydraulic conditions and operating scenarios. Monitoring of entrainment will occur 4-6 days per week during 9 months of the diversion season. Variables to be monitored at each of the diversions include the following.

- Diversion volume, timing, duration, frequency
- River flow, temperature, turbidity, hydraulic characterization
- Entrained species, sizes, numbers, and timing

Biological sampling will be conducted in the concrete canals downstream of the pumps at the diversion outlets. All captured fish species will be identified, counted, and measured. Biological sampling will utilize fyke nets and live boxes that can be attached directly to the downstream end of the diversion. The nets will be continuously operated during water diversion over 4-6 days each week.

A technical report will be prepared after the irrigation season, itemizing the results of the biological monitoring. Results of statistical tests (including ANOVA) and comparative graphics will be provided. Operational and other fish screening alternatives will be discussed.

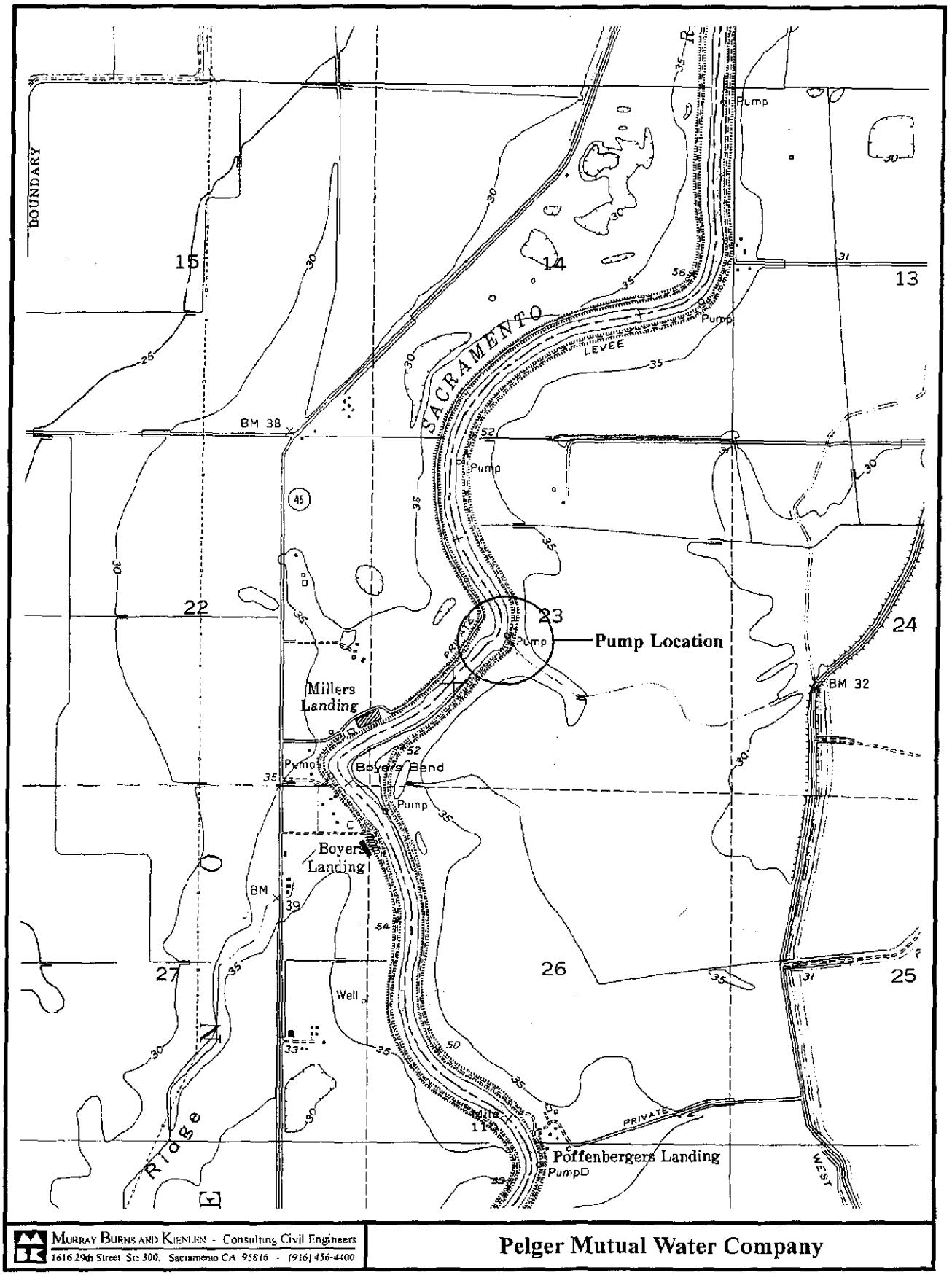
Presentations and Reporting
In addition to the biological and hydraulic monitoring, the following presentations and other monitoring reports are included in this proposal.

- **Program review presentations.** A maximum of (1) annual review presentation will be made to share information with CALFED or other agency staff and interested parties regarding the results of the project.

- **Quarterly reporting.** Quarterly reports will be submitted by the 10th of the month following the end of each quarter. The reports will include: amount invoiced to the contracting agency and cost share partners, a description of activities performed during the quarter, the percentage of each task completed, the deliverables produced, problems and delays encountered, and a description of any amendments or modifications to the contract.

- **Final/Annual monitoring report.** A single final/annual monitoring report will be prepared that presents the findings of the study. Data will be provided in electronic format and be available for transfer to CALFED's data storage system. The format of the report will include an introduction, methods, results, discussion, and recommendations.

Implementability
Owners of the two diversions are jointly cooperating on this investigation and providing support services (see attached documentation). An incidental take permit will have to be secured prior to implementing the study, and will be a condition of Pelger Mutual proceeding with subsequent tasks.



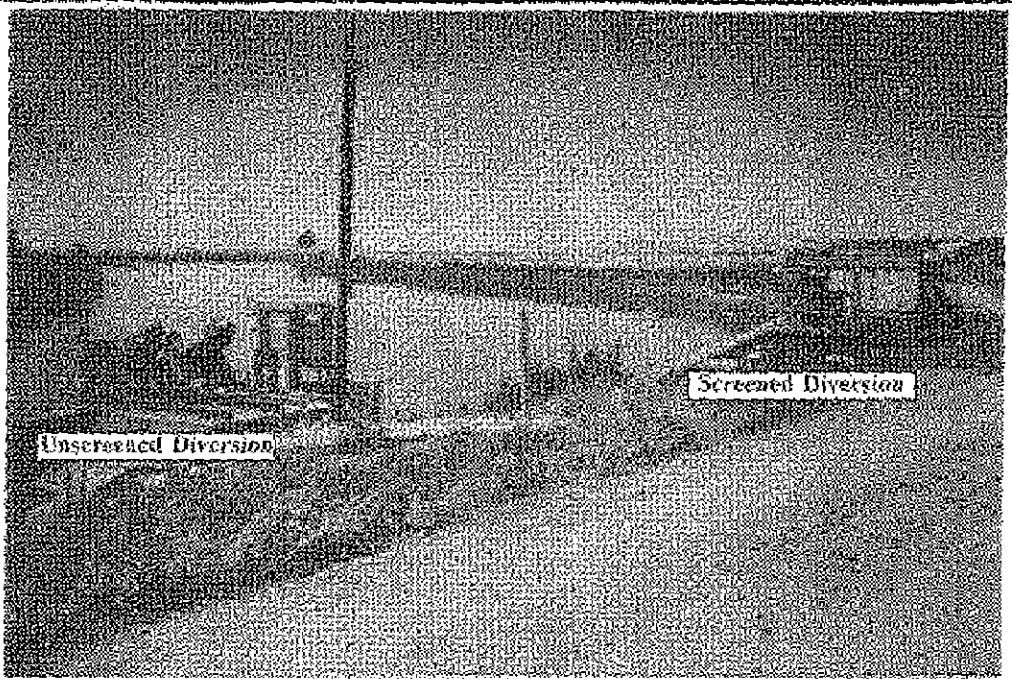
MURRAY BURNS AND KIENLEN - Consulting Civil Engineers
1616 29th Street Ste 300, Sacramento CA 95816 - (916) 456-4400

Pelger Mutual Water Company

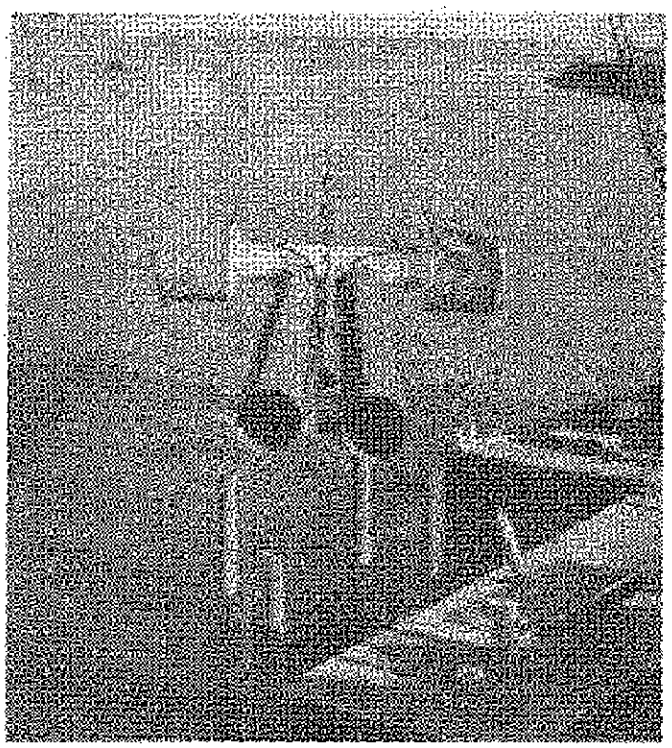
Figure 1

I —012870

I-012870



Looking Upstream Standing Downstream of Pumps



Fish Screens Installed on Pelger Pumps

Pelger Mutual Water Company

Figure 2

I-012871

II. Costs and Schedule

Budget

The proposed budget for the project is presented in Table 1. Pelger Mutual Water Company is proposing to absorb $5,000 in management costs as an in-kind cost share contribution.

Table 1

Small Fish Screen Evaluation								
	Task	Direct Labor Hours	Direct Salary & Benefits	Indirect Overhead Labor	Service Contracts	Material & Acquisition Contracts	Misc. & ODCs	Total Cost
1	**Environmental Permitting and Agency Consultation**				10,000			10,000
2	**Fisheries Monitoring and Hydraulic Analysis**				50,000			50,000
3	**Analysis, Reporting, and Project Management**				40,000			40,000
							Pelger Mutual Cost Share	$(5,000)
							Total CALFED Funding Request	$95,000

I —0 1 2 8 7 2

I-012872

Schedule Milestones

The proposed schedule is as follows:

Agency consultation, permitting	11/1/98 - 3/31/99
Monitoring	4/1/99 - 12/31/99
Analysis and Reporting	1/1/00 - 6/30/00

Third Party Impacts

There are no third party impacts associated with the proposed project. The owners of the two diversions to be used for the investigation (Pelger Mutual Water Company and Broomieside Farms) are cooperating in the study.

REYNEN & BARDIS
9985 FOLSOM BLVD.
SACRAMENTO, CA 95827
PH: 916-366-3665 FAX: 916-369-7128

FACSIMILE TRANSMITTAL SHEET

TO: Scott Tucker	FROM: John D. Reynen
COMPANY:	DATE: 07/01/98
FAX NUMBER: 530 662 9419	TOTAL NO. OF PAGES INCLUDING COVER: 1
PHONE NUMBER:	SENDER'S REFERENCE NUMBER:
RE: Broomieside Farms	YOUR REFERENCE NUMBER:

☐ URGENT ☐ FOR REVIEW ☐ PLEASE COMMENT

☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS:

Broomieside Farms agrees to cooperate with Pelger Mutual Water Co. under the Cal-Fed Bay Delta Program small screen evaluation and alternative program.

Sincerely,

John D. Reynen

FAXED

I-012874

III. Applicant Qualifications

Consistent with Government Code §4525, Murray, Burns and Kienlen, Consulting Civil Engineers, was selected by Pelger Mutual Water Company to provide engineering and financial services associated with fish screens and other water resource projects. The selection was made on the basis of qualifications and demonstrated competence for the requested services, including documentation of fair and reasonable prices.

MBK is a consulting civil engineering firm whose main emphasis is water resources. Its three main areas of specialization include water supply planning, flood control and water rights. MBK represents many water diverters located in the Sacramento/San Joaquin Delta watershed. This association has resulted in MBK personnel involvement in many existing and planned fish screening facilities. The services provided include feasibility design and environmental/regulatory. The list of projects includes Pelger Mutual Water Company, Deseret Farms Wilson Ranch, Maxwell Irrigation District, Lower Joice Island, Thousand Acre Ranch, Browns Valley Irrigation District and King Island.

Russell Berry is a project manager and fish screen specialist with expertise in fish screen design and construction. He has developed alternative fish screen designs for numerous projects in the Sacramento and San Joaquin river systems and Delta. Mr. Berry's innovative screen designs are in use on many diversions throughout California, and meet technical criteria stipulated by CDFG, NMFS, and the USFWS. Many of Mr. Berry's screens are designed specifically for small diversions. Mr. Berry is a certified diver and will investigate the integrity of Pelger Mutual's screens prior to and during the investigative period.

Scott Tucker is the manager of Pelger Mutual Water Company. Mr. Tucker and Pelger Mutual were selected by the BOR for a fish screening project under the Pilot Fish Screning Program and have cooperated with NMFS, FWS, CDFG, BOR, DWR and other agencies to promote effective fish protection programs.

Consistent with Government Code §4525, EA Engineering, Science, and Technology, Inc., was selected by Murray, Burns and Kienlen to provide environmental services in connection with project development, permit processing, and biological monitoring. The selection was made on the basis of qualifications and demonstrated competence for the requested services, including documentation of fair and reasonable prices.

EA Engineering, Science, and Technology, Inc., is a multidisciplinary environmental consulting firm with a staff of Northern California scientists who specialize in environmental analyses related to water resources. EA's staff have been conducting aquatic studies in the Sacramento River watershed, San Joaquin River watershed, and Delta for over 20 years, and have participated in fish screening studies for a variety of water diversion projects. EA's fish screening experience includes evaluation of screens and entrainment impacts associated with PG&E's power plants in the Delta, hydroelectric power plant diversions on the eastern and western Sierra Nevada, and agricultural diversions on the mainstem Sacramento River.

Pursuant to California Government Code §1090, EA Engineering, Science, and Technology, Inc. is disclosing a remote interest in proposals submitted for funding under CALFED's 1998 Category III program. EA staff, as third tier subcontractors to the Bureau of Reclamation, have provided technical and administrative support to CALFED agency staff in the Restoration Coordination Program. In this capacity, EA staff have assisted with documentation of public meetings of the Ecosystem Roundtable, and compiled restoration project information for distribution to Roundtable members and the public. EA's legal counsel has determined that EA's participation as a subconsultant in contracts that may be awarded under the Category III program does not constitute a violation of California Government Code §1090.

Scott Wilcox of EA Engineering, Science, and Technology is a senior fisheries biologist whose role will involve technical oversight and management of tasks related to biological monitoring and environmental compliance. His areas of technical expertise include aquatic and terrestrial resource impact assessment, fish screen evaluation, and fisheries analyses in riverine and estuarine systems. His 18 years of experience includes biological investigations for approximately 30 projects within or tributary to the Central Valley and the Delta. Many of these projects involved planning of aquatic habitat restoration actions and characterization of fish populations and habitat conditions. Relevant project experience includes biological consultation, design, and monitoring plan development for fish screens on hydro projects; fish population sampling in riverine and estuarine systems; CEQA compliance for habitat restoration and mitigation projects; and TES species surveys. Professional references for similar projects include John Kessler (916-644-1960) of El Dorado Irrigation District and Steve Onken (530-534-1221) of Oroville-Wyandotte Irrigation District.

IV. Compliance With Standard Terms and Conditions

The terms and conditions of the contract with CALFED or its assignee are agreeable to Pelger Mutual Water Company.

I —0 1 2 8 7 7

I-012877

ITEM 7

NONDISCRIMINATION COMPLIANCE STATEMENT

COMPANY NAME Pelger Mutual Water Company

The company named above (hereinafter referred to as "prospective contractor") hereby certifies, unless specifically exempted, compliance with Government Code Section 12990 (a-f) and California Code of Regulations, Title 2, Division 4, Chapter 5 in matters relating to reporting requirements and the development, implementation and maintenance of a Nondiscrimination Program. Prospective contractor agrees not to unlawfully discriminate, harass or allow harassment against any employee or applicant for employment because of sex, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition (cancer), age, marital status, denial of family and medical care leave and denial of pregnancy disability leave.

CERTIFICATION

I, the official named below, hereby swear that I am duly authorized to legally bind the prospective contractor to the above described certification. I am fully aware that this certification, executed on the date and in the county below, is made under penalty of perjury under the laws of the State of California.

OFFICIAL'S NAME Scott C Tucker

DATE EXECUTED 6/28/98

EXECUTED IN THE COUNTY OF Sutter

PROSPECTIVE CONTRACTOR'S SIGNATURE Scott C Tucker

PROSPECTIVE CONTRACTOR'S TITLE President

PROSPECTIVE CONTRACTOR'S LEGAL BUSINESS NAME Pelger Mutual Water Company

I-012878

I-012878

ITEM 10

Agreement No. _____

Exhibit _____

NONCOLLUSION AFFIDAVIT TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID FOR PUBLIC WORKS

STATE OF CALIFORNIA)
)ss
COUNTY OF Sutter)

Scott C Tucker (name), being first duly sworn, deposes and says that he or she is President (position title) of Pelger Mutual Water Company (the bidder),

the party making the foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

DATED: 6/29/98

By Scott C Tucker
(person signing for bidder)

LAVERNE M. DRIVER
Commission # 1144837
Notary Public - California
Sutter County
My Comm. Expires Jul 1, 2001

(Notarial Seal)

Subscribed and sworn to before me on June 29, 1998

Laverne M. Driver
(Notary Public)

I-012879